

WHAT IS CLAIMED IS:

- 1 1. A multi-user talking system for providing a multi-user
2 talking service among viewers of a content, wherein:
3 said multi-user talking system comprises a content
4 distribution apparatus and a multi-user talking control apparatus,
5 each apparatus being connected to terminals of viewers through a
6 network;
7 said content distribution apparatus comprises:
8 request-for-viewing receiving means for receiving a request
9 for viewing said content from a terminal of a viewer;
10 viewer management means for managing a request for
11 viewing received by said request-for-viewing receiving means,
12 associating said request with a transmission source address of said
13 request for viewing; and
14 content distribution means for distributing said content to a
15 transmission source address managed by said viewer management
16 means, through said network;
17 and
18 said multi-user talking control apparatus comprises:
19 request-for-participation receiving means for receiving a
20 request for participation in multi-user talking, from a terminal of a
21 viewer;
22 participant management means that manages a transmission
23 source address of a request for participation received by said
24 request-for-participation receiving means, when said transmission

25 source address is managed by said viewer management means;
26 mixing means that receives, through said network, respective
27 pieces of talking data from terminals of viewers who have
28 transmission source addresses managed by said participant
29 management means, and mixes said pieces of talking data received
30 to generate multi-user talking data; and

31 multi-user talking data distribution means for distributing
32 the multi-user talking data generated by said mixing means to
33 transmission source addresses managed by said participant
34 management means, through said network.

- 1 2. The multi-user talking system according to Claim 1, wherein:
2 said multi-user talking control apparatus further comprises:
3 request-for-appeal-for-participation receiving means for
4 receiving a request for appeal for participation in multi-user talking,
5 from a terminal of a viewer; and
6 appeal-for-participation means that distributes an appeal for
7 participation in multi-user talking to terminals of viewers who have
8 respective transmission source addresses other than transmission
9 source addresses managed by said participant management means,
10 among transmission source addresses managed by said viewer
11 management means, when a transmission source address of the
12 request for appeal for participation received by said
13 request-for-appeal-for-participation receiving means is a
14 transmission source address managed by said participant
15 management means, and receives respective answers to said appeal
16 for participation, from the terminals of said viewers;
17 and

18 when an answer to said appeal for participation received by
19 said appeal-for-participation means indicates intention of
20 participating, said participant management means manages a
21 transmission source address of said answer.

1 3. The multi-user talking system according to Claim 2, wherein:

2 said multi-user talking system further comprising:

3 a database that registers private information of a registered
4 person who can use said multi-user talking service, associating the
5 private information with identification information of said
6 registered person;

7 and

8 said request for viewing includes said identification
9 information of the viewer;

10 said request-for-appeal-for-participation receiving means:

11 detects requests for viewing other than requests for viewing
12 associated respectively with transmission source addresses managed
13 by said participant management means, out of requests for viewing
14 managed by said viewer management means, when a transmission
15 source address of a request for appeal for participation received is a
16 transmission source address managed by said participant
17 management means;

18 specifies private information of viewers whose identification
19 information is included in the detected requests for viewing, using
20 said database and based on said identification information of the
21 viewers; and

22 transmits participation selection information for the sake of
23 selecting a piece of private information of a viewer to whom

24 participation is to be appealed out of the specified private
25 information, to the transmission source address of said request for
26 appeal for participation, so that the terminal of the viewer having
27 the transmission source address of said request for appeal for
28 participation selects a piece of private information of a viewer to
29 whom participation is to be appealed;

30 and

31 said appeal-for-participation means:

32 specifies private information of a viewer whose
33 identification information is included in a request for viewing
34 managed in association with the transmission source address of said
35 request for appeal for participation by said viewer management
36 means, using said database and based on said identification
37 information of the viewer;

38 transmits an appeal for participation, which is appealed by
39 the viewer having said private information specified, to a
40 transmission source address of a request for viewing that is managed
41 by said viewer management means and that includes identification
42 information of said selected piece of private information; and

43 receives an answer to said appeal for participation from a
44 terminal of the viewer having said transmission source address.

1 4. The multi-user talking system according to Claim 1, wherein:

2 said network is an IP network;

3 said content distribution means converts said content into IP
4 packets, adds transmission source addresses managed by said viewer
5 management means to a header of each IP packet, and multicasts the
6 IP packets onto said IP network; and

7 said multi-user talking data distribution means converts the
8 multi-user talking data generated by said mixing means into IP
9 packets, adds transmission source addresses managed by said
10 participant management means to a header of each IP packet, and
11 multicasts the IP packets onto said IP network.

1 5. The multi-user talking system according to Claim 4, wherein:
2 said multi-user talking system further comprising:

3 a first relay for relaying data between said IP network and
4 television broadcast, said first relay having means for assembling IP
5 packets addressed to the first relay itself to restore a content and for
6 broadcasting the restored content; and

7 a second relay for relaying data between said IP network and
8 a telephone network, said second relay having means for assembling
9 IP packets addressed to the second relay itself to restore multi-user
10 talking data and for transmitting the restored multi-user talking data
11 to a channel specified by a telephone number informed from said
12 multi-user talking control apparatus, and means for converting
13 talking data received by said channel into IP packets and for
14 transmitting the IP packets to said multi-user talking control
15 apparatus;

16 said request-for-viewing receiving means comprises:

17 means for receiving a request for viewing from a viewer's
18 terminal provided with an interface with said IP network through
19 said IP network; and

20 means for receiving a request for viewing from a viewer's
21 terminal provided with an interface with said telephone network
22 through said telephone network;

23 said viewer management means sets a transmission source
24 address associated with a request for viewing received by said
25 request-for-viewing receiving means, to an IP address of a
26 transmission source of said request for viewing, when said
27 request-for-viewing receiving means receives said request for
28 viewing through said IP network, and to a telephone number of the
29 transmission source of said request for viewing, when said
30 request-for-viewing receiving means receives said request for
31 viewing through said telephone network;

32 said content distribution means uses an IP address of said
33 first relay, as a transmission source address added to a header of
34 each IP packet of said content, in place of a telephone number
35 included in the transmission source addresses managed by said
36 viewer management means, when such a telephone number exists;

37 said request-for-participation receiving means comprises:

38 means for receiving a request for participation from a
39 viewer's terminal provided with an interface with said IP network
40 through said IP network; and

41 means for receiving a request for participation including a
42 telephone number from a viewer's terminal provided with an
43 interface with said telephone network through said telephone
44 network;

45 said participant management means sets a transmission
46 source address associated with a request for participation received
47 by said request-for-participation receiving means, to an IP address
48 of a transmission source of said request for participation, when said
49 request-for-participation receiving means receives said request for
50 participation through said IP network, and to a telephone number of

51 the transmission source of said request for participation, when said
52 request-for-participation receiving means receives said request for
53 participation through said telephone network;

54 said mixing means receives pieces of talking data through
55 said network from viewer's terminals each having an IP address
56 managed by said participant management means and from said
57 second relay, when a telephone number is included in transmission
58 source addresses of requests for participation managed by said
59 participant management means, and mixes the received pieces of
60 talking data to generate multi-user talking data;

61 said multi-user talking data distribution means uses an IP
62 address of said second relay, as an address added to a header of each
63 IP packet of the multi-user talking data generated by said mixing
64 means, in place of a telephone number included in the transmission
65 source addresses of the requests for participation managed by said
66 participant management means, when such a telephone number
67 exists; and

68 said multi-user talking control apparatus further comprises a
69 number informing means for informing said second relay of a
70 telephone number included in a request for participation, when a
71 transmission source address of said request for participation
72 received by said request-for-participation means is said telephone
73 number.

- 1 6. The multi-user talking system according to Claim 5, wherein:
2 said viewer's terminal provided with the interface with said
3 telephone network comprises:
4 receiving means for receiving said content broadcast by the

5 television broadcast and for outputting the received content to a
6 television broadcast display apparatus;

7 request-for-viewing transmitting means for transmitting a
8 request, which includes a telephone number of a telephone set by an
9 operator, for viewing said content, to said content distribution
10 apparatus through said telephone network, before said receiving
11 means receives said content; and

12 request-for-participation transmitting means for receiving a
13 request for participation in multi-user talking from the operator
14 while said receiving means is receiving said content, and for
15 transmitting the received request for participation to said multi-user
16 talking control apparatus through said telephone network.

1 7. The multi-user talking system according to Claim 5, wherein:
2 said viewer's terminal provided with the interface with said
3 IP network comprises:

4 request-for-viewing transmitting means for transmitting a
5 request for viewing said content, to said content distribution
6 apparatus through said IP network;

7 content display means for assembling IP packets addressed
8 to said content display means itself to restore said content, and for
9 displaying the restored content on a display unit;

10 request-for-participation transmitting means for receiving a
11 request for participation in multi-user talking from an operator
12 while said content display means is displaying said content on said
13 display unit, and for transmitting the received request for
14 participation to said multi-user talking control apparatus through
15 said IP network;

16 multi-user talking output means for assembling IP packets
17 addressed to said multi-user talking output means itself to restore
18 said multi-user talking data, and for outputting sound conforming to
19 the restored multi-user talking data, to a sound output apparatus;
20 and

21 talking data transmitting means for converting talking data
22 conforming to sound inputted through a sound input apparatus into
23 IP packets, and for adding an IP address of said multi-user talking
24 control apparatus to a header of each IP packet, to transmits the IP
25 packets onto said IP network.

1 8. The multi-user talking system according to Claim 1, wherein:
2 said request for viewing includes designation of the content
3 that said viewer wishes to view;

4 said viewer management means manages requests for
5 viewing including designation of respective contents, classifying
6 said requests under said respective contents, and associating said
7 requests with respective transmission source addresses of said
8 requests;

9 said content distribution means distributes contents that are
10 associated with respective transmission source addresses by said
11 viewer management means, to said respective transmission source
12 addresses associated with said contents, through said network;

13 said participant management means manages a transmission
14 source address of a request for participation, associating said
15 transmission source address with a content that is associated with
16 said transmission source address by said viewer management means;

17 said mixing means generates multi-user talking data for each

18 content managed by said participant management means, by
19 receiving pieces of talking data respectively from terminals of
20 viewers having transmission source addresses associated with said
21 content, and by mixing said pieces of talking data received, to
22 generate said multi-user talking data; and

23 said multi-user talking data distribution means distributes
24 the multi-user talking data generated for each content by said
25 mixing means, to transmission source addresses associated with the
26 content in question by said participant management means, through
27 said network.

1 9. A method of multi-user talking, which uses a computer for
2 providing a multi-user talking service among viewers of a content,
3 comprising:

4 a request-for-viewing receiving step of receiving a request
5 for viewing said content from a terminal of a viewer;

6 a viewer management step of managing a request for viewing
7 received in said request-for-viewing receiving step, associating said
8 request with a transmission source address of said request for
9 viewing;

10 a content distribution step of distributing said content to a
11 transmission source address managed in said viewer management
12 step;

13 a request-for-participation receiving step of receiving a
14 request for participation in multi-user talking, from a terminal of a
15 viewer;

16 a participant management step of managing a transmission
17 source address of a request for participation received in said

18 request-for-participation receiving step, when said transmission
19 source address is managed in said viewer management step;

20 a mixing step of receiving respective pieces of talking data
21 from terminals of viewers who have transmission source addresses
22 managed in said participant management step, and mixing said
23 pieces of talking data received to generate multi-user talking data;
24 and

25 a multi-user talking data distribution step of distributing the
26 multi-user talking data generated in said mixing step to transmission
27 source addresses managed in said participant management step.

1 10. The method of multi-user talking according to Claim 9,
2 wherein:

3 in said request-for-viewing receiving step, said request for
4 viewing is received from a viewer's terminal provided with an
5 interface with an IP network, through said IP network, and received
6 from a viewer's terminal provided with an interface with a telephone
7 network, through said telephone network;

8 in said viewer management step, a transmission source
9 address that is associated with a request for viewing received in said
10 request-for-viewing receiving step is set to an IP address of a
11 transmission source address of said request for viewing, when said
12 request for viewing is received through said IP network, and to a
13 telephone number of the transmission source of said request for
14 viewing, when said request for viewing is received through said
15 telephone network;

16 in said content distribution step, said content is converted to
17 IP packets, and transmission source addresses managed in said

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18 viewer management step are added to a header of each IP packet, to
19 multicast the IP packets onto said IP network, and, when a telephone
20 number is included in the transmission source addresses managed in
21 said viewer management step, then, an IP address of a first relay,
22 which assembles IP packets addressed to the first relay itself to
23 restore a content and broadcasts the content, is used in place of said
24 telephone number as a transmission source address added to a
25 header of each IP packet of said content;

26 in said request-for-participation receiving step, a request for
27 participation is received from a viewer's terminal provided with an
28 interface with said IP network, through said IP network, and a
29 request for participation including a telephone number is received
30 from a viewer's terminal provided with not an interface with said IP
31 network but an interface with said telephone network, through said
32 telephone network;

33 in said participant management step, a transmission source
34 address of a request for participation received in said
35 request-for-participation receiving step is set to an IP address of a
36 transmission source of said request for participation, when said
37 request for participation is received through said IP network, and to
38 a telephone number of the transmission source of said request for
39 participation, when said request for participation is received
40 through said telephone network;

41 in said mixing step,

42 pieces of talking data are received through said IP network
43 from viewer's terminals each having an IP address managed in said
44 participant management step, and the received pieces of talking data
45 are mixed to generate multi-user talking data; and

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46 when a telephone number is included in transmission source
47 addresses managed in said participant management step, pieces of
48 talking data are received from viewer's terminals each having an IP
49 address managed in said participant management step and from a
50 second relay, and said pieces of talking data are assembled to
51 generate multi-user talking data, wherein said second relay
52 assembles IP packets addressed to the second relay itself to restore
53 multi-user talking data and to transmit the restored multi-user
54 talking data to a channel specified by a telephone number informed
55 from said computer, and converts talking data received from said
56 channel to IP packets to transmits the IP packets to said computer;

57 in said multi-user talking data distribution step,

58 the multi-user talking data generated in said mixing step is
59 converted to IP packets, and the transmission source addresses
60 managed in said participant management step are added to a header
61 of each IP packet, to multicast the IP packets onto said IP network;
62 and

63 when a telephone number is included in the transmission
64 source addresses managed in said participant management step, an
65 IP address of said second relay is used in place of said telephone
66 number, as an address added to a header of each IP packet of said
67 multi-user talking data, and, when a transmission source address of
68 a request for participation is said telephone number, then said
69 telephone number is sent to said second relay.